

AMENDMENTS TO THE CLAIMS

Please amend claims 4-5, 7, 12, 18, 24 and 31-32, such that the status of the claims is as follows:

1-2. (Canceled)

3. (Previously presented) A system according to claim 5, in which the control means includes means for pressurizing the liquid extinguishing agent in dependence on the pressure of the gas.

4. (Currently amended) A fire and explosion suppression system, comprising:

a source of pressurised liquid extinguishing agent,

a source of a pressurised gas,

mist producing means connected to receive a flow of the liquid extinguishing agent ~~at a mass flow rate thereof~~ to produce a mist therefrom,

mixing means for mixing the already-produced mist into a flow of the pressurised gas to produce a discharge in the form of a two-phase mixture comprising a suspension of droplets of the mist in the pressurised gas,

a first path extending between the source of pressurised liquid extinguishing agent and the mist producing means for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof,

a second path extending between the source of the pressurised gas and the mixing means for guiding the flow of the pressurised gas to the mixing means at a mass flow rate thereof,

means for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent, wherein the flow of the pressurised gas has a mass flow rate and the applied pressure of the pressurised gas is pressurised by being stored under pressure which thus continually reduces during the

flow thereof through the second path and ~~reduces the mass flow rate of the gas, and~~

~~control means including means for applying the pressure of the stored gas to pressure the liquid extinguishing agent whereby the reducing applied pressure correspondingly reduces~~ means in the first path for automatically adjusting the mass flow rate of the liquid extinguishing agent as a function of the applied pressure of the pressurised gas so as to control the ratio of the mass flow rate of the liquid extinguishing agent in the first path to the mass flow rate of the pressurised gas in the second path towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge.

5. (Currently amended) A fire and explosion suppression system, comprising:

- a source of pressurised liquid extinguishing agent,
- a source of a pressurised gas,
- mist producing means connected to receive a flow of the liquid extinguished agent to produce a mist therefrom,
- mixing means for mixing the already-produced mist into a flow of the pressurised gas to produce a discharge in the form a two-phase mixture comprising a suspension of droplets of the mist in the pressurised gas,
- a first path extending between the source of pressurised liquid extinguishing agent and the mist producing means for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof,
- a second path extending between the source of the pressurised gas and the mixing means for guiding the flow of the pressurised gas to the mixing means at a mass flow rate thereof,

a third path extending between the source of the pressurised gas and the source of the pressurised liquid extinguishing agent for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent, and
control means for controlling the ratio of the mass flow rate of the liquid extinguishing agent in the first path to the mass flow rate of the pressurised gas in the second path towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge, wherein the control means includes controllable valve means in the first path for automatically adjusting the mass flow rate of the liquid extinguishing agent in the first path as a function of the pressure of the pressurised gas in the third path during the discharge.

6. (Withdrawn) A system according to claim 5, in which the valve means comprises a controllable metering valve means and the control means includes means for adjusting the metering valve means in dependence on the mass flow rate of the gas.

7. (Currently amended) A system according to claim 5, in which the valve means comprises a pressure control proportioning water valve having an orifice size directly controlled by
~~controllable metering valve means and the control means includes means for adjusting the metering valve means in dependence on~~ the pressure of the ~~stored~~ pressurised gas in the third path.

8. (Withdrawn) A system according to claim 5, in which the controllable valve means comprises a plurality of parallel flow paths for feeding the liquid extinguishing agent to the mist producing means and having respective flow orifices of different cross-sectional area, in combination with selection means for selecting any one or more of the flow paths.

9. (Previously presented) A system according to claim 5, in which the control means includes means for controlling the pressure of the pressurised liquid extinguishing agent.

10. (Withdrawn) A system according to claim 9, in which the control means includes a pump for pressurising the source of the liquid extinguishing agent.

11. (Withdrawn) A system according to claim 10, in which the control means includes means responsive to the mass flow rate of the gas for adjusting the pump to vary the pressure of the source of the liquid extinguishing agent.

12. (Currently amended) A fire and explosion suppression system, comprising:

a source of pressurised liquid extinguishing agent,

a source of a pressurised gas,

mist producing means connected to receive a flow of the liquid extinguishing agent to produce a mist therefrom,

mixing means for mixing the already-produced mist into a flow of the pressurised gas to produce a discharge in the form of a two-phase mixture comprising a suspension of droplets of the mist in the pressurised gas,

a first path extending between the source of pressurised liquid extinguishing agent and the mist producing means for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof,

a second path extending between the source of the pressurised gas and the mixing means for guiding the flow of the pressurised gas to the mixing means at a mass flow rate thereof,

a third path extending between the source of the pressurised gas and the source of the pressurised liquid extinguishing agent for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent, and

~~control~~ means for controlling the ratio of the mass flow rate of the liquid extinguishing agent in the first path to the mass flow rate of the pressurised gas in the second path towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge including a valve in the first path having a variable orifice controlled by the pressure of the pressurised gas in the third path to adjust the mass flow rate of the liquid extinguishing agent in the first path, and

~~including~~ means for initiating the flow of the liquid extinguishing agent in the first path before initiating the flow of the pressurised gas in the second path.

13. (Previously presented) A system according to claim 4, in which the liquid extinguishing agent is water.

14. (Previously presented) A system according to claim 4, in which the liquid extinguishing agent is a chemical substance.

15-16. (Canceled)

17. (Canceled)

18. (Currently amended) A fire and explosion suppression method, in which a mist of a liquid extinguishing agent is produced from a flow of the liquid extinguishing agent and is mixed into a flow of pressurised gas to produce a discharge in the form of a two-phase mixture comprising a suspension of droplets of the mist in the pressurised gas, the method including the step of controlling the ratio of the mass flow rate of the liquid extinguishing agent to the mass flow rate of the pressurised gas towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge, wherein the pressurised gas is pressurised by being stored under pressure which thus reduces during the flow thereof and reduces the mass flow rate of the gas, and wherein said controlling of said ratio to produce said

constant droplet size distribution in and for substantially the duration of the discharge ~~is achieved~~
~~at least partially by~~ includes the steps of:

applying the pressure of the stored gas to pressurise the liquid extinguishing agent
whereby the reducing applied pressure correspondingly reduces the mass flow rate
of the liquid extinguishing agent as the mass flow rate of the gas undergoes said
reduction thereof, and
directly controlling a valve using the applied pressure of the stored gas to adjust the mass
flow rate of the liquid extinguishing agent.

19-23. (Canceled)

24. (Currently amended) A fire and explosion suppression method, in which a mist of a liquid extinguishing agent is produced from a flow of the liquid extinguishing agent and is mixed into a flow of pressurised gas to produce a discharge in the form of a two-phase mixture comprising a suspension of droplets of the mist in the pressurised gas, the method including the step of controlling the ratio of the mass flow rate of the liquid extinguishing agent to the mass flow rate of the pressurised gas towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge, including the step of initiating the flow of the liquid extinguishing agent before initiating the flow of the gas, and further including the steps of:

applying a pressure of the pressurised gas to pressurise the liquid extinguishing agent, and
directly controlling a valve using the applied pressure of the pressurised gas to adjust the
mass flow rate of the liquid extinguishing agent.

25. (Previously presented) A method according to claim 18, in which the liquid extinguishing agent is water.

26. (Previously presented) A method according to claim 18, in which the liquid extinguishing agent is a chemical substance.

27-29. (Canceled)

30. (Previously presented) A system according to claim 4, wherein the pressurised gas is pressurised inert gas.

31. (Currently amended) A ~~system~~ method according to claim 18, wherein the pressurised gas is pressurised inert gas.

32. (Currently amended) A method for suppressing a fire or an explosion, comprising:
providing a source of an extinguishing liquid and a source of a pressurised
extinguishing gas,
causing the liquid and the gas to flow simultaneously along a common pipe to a
nozzle so that a two-phase mixture comprising droplets of the liquid
suspended in the gas is discharged from the nozzle,
controlling a ratio of a mass flow rate of the liquid to a mass flow rate of the gas
towards a value to produce a desired droplet size distribution in and for
substantially a duration of the discharge, wherein the pressurised gas is
pressurised by being stored under pressure which reduces during the flow
thereof and reduces the mass flow rate of the gas, and
applying the pressure of the stored gas to pressurise the liquid and to control a
valve for adjusting the mass flow rate of the liquid, whereby the reduced
applied pressure ~~correspondingly reduces~~ adjusts the mass flow rate of the
liquid extinguishing agent.

33. (Previously presented) A method according to claim 32, wherein the pipe branches to supply the liquid and the gas to a plurality of nozzles.